

Supplementary Information

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**Synthesis and Photocatalytic Performance Investigation of NH₄Cl-Assisted Two-Step
Calcination Method for Modified g-C₃N₄**

**Xinyue Zhang¹, Lin Yuan¹, Yu Zhang¹, Xinyu Shu¹, Renjie Li², Qunfen Deng¹, Zilong
Zhang¹, Rui Yang^{1,*}**

*¹School of Chemistry and Chemical Engineering, Southwest University, No.2 Tiansheng Road,
Chongqing 400715, People's Republic of China*

²Analytical & Testing Center, Sichuan University, Chengdu, Sichuan 610064, China

***Corresponding author**

Dr. Rui Yang (E-mail address: ruiyang@swu.edu.cn)

1. The procedure of the recycling test

In the recycle testing, 10 mg of catalyst was incorporated into 100 ml of 50 mg/L RhB solution. The catalyst suspension was ultrasonic treated for 2 min, so that the sample was uniformly dispersed, and then continuously stirred in the dark for 30 min to achieve the adsorption-desorption equilibrium. Subsequently, the photocatalytic experiments were carried out under the visible light of a 360 W LED lamp for 30 min, and about 4.0 mL of the catalyst suspension was extracted at 10-minute intervals. Then, centrifuged to remove the particles and the absorbance of the supernatant was gained through a UV-vis spectrophotometer at 554 nm. Finally, the remaining photocatalytic suspension in the photoreactor was attained through filtration, washed several times with ethanol and ultrapure water, and dried for 2 hours at 60°C. To obtain sufficient catalyst, the above experiments were repeated several times, and the resulting catalyst powder was used as the catalyst for the first cycle experiment. The procedure of the first cycle experiment was the same as above. The catalyst powder obtained in the first cycle experiment was recovered and used as the catalyst in the second cycle experiment. The second cycle experiment procedure was the same as above. The catalyst powder obtained from the second cycle experiment was recovered as the catalyst for the third cycle experiment. The third cycle experiment procedure was the same as above.

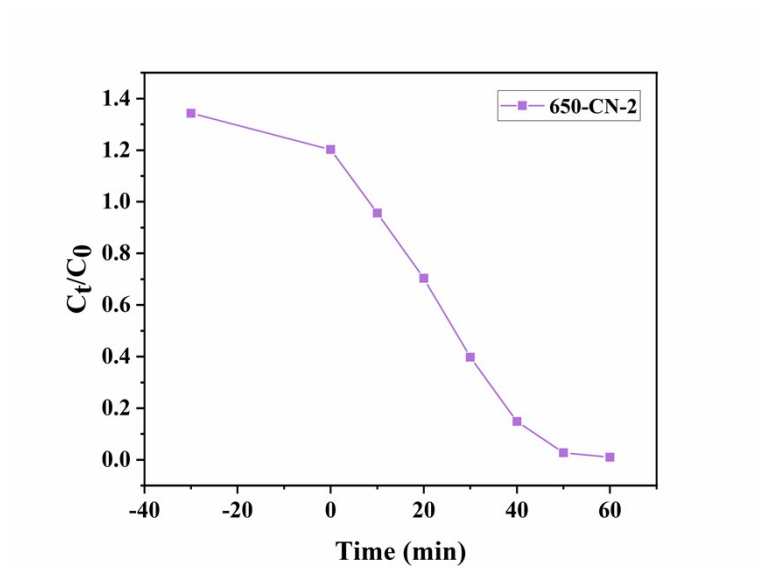


Fig. S1 Degradation of RhB by 650-CN-2 under sunlight.

Table. S1 The specific surface area normalization activity of CN, CN-2, 650-CN-2.

Sample	S_{BET} (m² g⁻¹)	Degradation efficiency	The apparent rate constants (min⁻¹)	The normalized apparent rate constants based on surface area (g (m²)⁻¹ min⁻¹)
CN	14.2916	11.1%	0.00382	2.67×10 ⁻⁴
CN-2	48.2561	72.9%	0.0429	8.88×10 ⁻⁴
650-CN-2	60.9310	97.0%	0.116	1.91×10 ⁻³